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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/954,969	09/17/2001	William E. Glenn	FAU-7039/40	8770

7590 06/28/2005

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EXAMINER	
HANNETT, JAMES M	
ART UNIT	**PAPER NUMBER**
2612	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/954,969	GLENN ET AL.	
	Examiner	Art Unit	
	James M. Hannett	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 September 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/22/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings are hand drawn. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: On Page 2, Line 5 the specification states the serial number 09/653,963. This should read as 09/653,983.

Appropriate correction is required.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A color video camera that includes a color CCD and a luminance CCD.

Claim Objections

1: Claim 8 is objected to because of the following informalities: Lines 3 states "color signal fro the output". This is clearly an error and should read, "color signal from the output". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2: Claims 2-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,523,785 Muramoto in view of USPN 6,295,087 Nohda.

3: As for Claim 2, Muramoto teaches on Column 8, Lines 5-49 and depicts in Figure 8 a method for providing electronic video signals representative of color images of a scene (video out), comprising the steps of: providing a luminance sensor (15) and a color sensor (14) having a color filter thereover, providing a beam-splitter (16), and providing a lens system (1) that focuses light from the image, via the beam-splitter (16), onto the luminance sensor (15) and the color sensor (14); and providing electronic video signals (Y, R, G, and B) from outputs of the luminance sensor (15) and the color sensor (14). Muramoto teaches that the color image sensor is a RGB color sensor. However, Muramoto does not teach that the three color image sensor can have the red and green pixels arranged in a checkerboard pattern. The examiner notes that the claim language is written broadly and therefore, the examiner does not believe that the claim is limited to an image sensor only having red and green pixel arranged in a checkerboard pattern.

Nohda teaches on Column 3, Lines 44-50 and depicts in Figure 3 that it was advantageous to arrange the red, green, and blue pixels in an RGB color image sensor in a checkerboard arrangement in order to improve image quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the red, green, and blue pixels in the image sensor (14) of Muramoto in a checkerboard arrangement in order to improve image quality.

4: In regards to Claim 3, Muramoto teaches on Column 5, Lines 3-12 the step of producing video signals from the outputs of the luminance sensor (15) and the color sensor (14) includes binning of the signals from the color sensor (14). Muramoto teaches that the three colors are separated so processing can be performed individually for each color. Furthermore, Nohda teaches that the pixels are arranged in a diagonal checkerboard arrangement. Therefore, the binning would occur diagonally.

5: As for Claim 4, Muramoto teaches on Column 5, Lines 3-12 the step of producing video signals from the outputs of the luminance sensor (15) and the color sensor (14) includes binning of the signals from the color sensor (14). Muramoto teaches that the three colors are separated so processing can be performed individually for each color. Furthermore, Nohda teaches that the pixels are arranged in a diagonal checkerboard arrangement with red and green pixels arranged diagonally. Therefore, the red and green binning would occur diagonally.

6: In regards to Claim 5, Muramoto in view of Nohda teaches on Column 5, Lines 3-12 the step of producing video signals from the outputs of the luminance sensor (15) and the color sensor (14) includes binning of the signals from the color sensor (14). Muramoto teaches that the three colors are separated so processing can be performed individually for each color. Furthermore, Nohda teaches that the pixels are arranged in a diagonal checkerboard arrangement with red and green pixels arranged diagonally. Therefore, it is inherent that the readout clock

signals from the CCD image sensor are alternated horizontally and vertically or else the colors could not be properly separated.

7: As for Claim 6, Muramoto in view of Nohda teaches on Column 5, Lines 3-12 the step of producing video signals from the outputs of the luminance sensor (15) and the color sensor (14) includes binning of the signals from the color sensor (14). Muramoto teaches that the three colors are separated so processing can be performed individually for each color. Furthermore, Nohda teaches that the pixels are arranged in a diagonal checkerboard arrangement with red and green pixels arranged diagonally. Therefore, it is inherent that the readout clock signals from the CCD image sensor are alternated horizontally and vertically or else the colors could not be properly separated.

8: In regards to Claim 7, Muramoto teaches on Column 8, Lines 5-49 and depicts in Figure 8 the use of a red and blue color image sensor (204) and a luminance sensor (203). Muramoto teaches the method of deriving RGB color signal from the Red, Blue, and white image data (209). However, Muramoto does not teach that the color pixels on the image sensor can be a checkerboard pattern or that the color pixels can be replaced with Red and Green.

Nohda teaches on Column 3, Lines 44-50 and depicts in Figure 3 that it was advantageous to arrange the red, green, and blue pixels in an RGB color image sensor in a checkerboard arrangement in order to improve image quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the red, and blue pixels in the image sensor (14) of Muramoto in a checkerboard arrangement in order to improve image quality.

Furthermore, Official notice is taken that it was well known in the art at the time the invention was made to derive RGB color data from luminance data, Red image data, and Green image data in order to improve image quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the Blue pixel in the CCD of Muramoto with Green pixels in order to derive RGB color data from luminance data, Red image data, and Green image data in order to improve image quality.

9: As for Claim 8, Muramoto teaches on Column 8, Lines 5-49 and depicts in Figure 8 the use of a red and blue color image sensor (204) and a luminance sensor (203). Muramoto teaches the method of deriving RGB color signal from the Red, Blue, and white image data (209). However, Muramoto does not teach that the color pixels on the image sensor can be a checkerboard pattern or that the color pixels can be replaced with Red and Green.

Nohda teaches on Column 3, Lines 44-50 and depicts in Figure 3 that it was advantageous to arrange the red, green, and blue pixels in an RGB color image sensor in a checkerboard arrangement in order to improve image quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the red, and blue pixels in the image sensor (14) of Muramoto in a checkerboard arrangement in order to improve image quality.

Furthermore, Official notice is taken that it was well known in the art at the time the invention was made to derive RGB color data from luminance data, Red image data, and Green image data in order to improve image quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the Blue pixel in the CCD of Muramoto with Green pixels in order to derive RGB color data from luminance data, Red image data, and Green image data in order to improve image quality.

10: In regards to Claim 9, Muramoto in view of Nohda teaches in Figure 8 a system that generates a video signal (video out) from two image sensors. Muramoto in view of Nohda teaches that image processing is performed on the color image data (R,G) and the luminance data (Y) from the two image sensors (204 and 203). Muramoto teaches in Figure 9 the use of passing the luminance data through a low-pass filter (212) in order to remove the high frequency components. However, Muramoto does not teach decimating and interpolating the red and green color signals to obtain low resolution red and green color signals.

Nohda further depicts in Figure 14 and teaches on Column 11, Lines 12-27 and in the abstract that it is advantageous to provide a digital camera with an decimation and interpolation function (85 and 87) in order to allow a camera to obtain a high resolution image at a reasonable cost by decreasing the complexity of the processing required.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to interpolate the image data output form the image sensors of Muramoto as taught by Nohda in order to decrease the processing required and enable the camera to obtain a high resolution image at a reasonable cost.

11: As for Claim 10, Muramoto in view of Nohda teaches in Figure 8 a system that generates a video signal (video out) from two image sensors. Muramoto in view of Nohda teaches that image processing is performed on the color image data (R,G) and the luminance data (Y) from

the two image sensors (204 and 203). Muramoto teaches in Figure 9 the use of passing the luminance data through a low-pass filter (212) in order to remove the high frequency components. However, Muramoto does not teach decimating and interpolating the red and green color signals to obtain low resolution red and green color signals.

Nohda further depicts in Figure 14 and teaches on Column 11, Lines 12-27 and in the abstract that it is advantageous to provide a digital camera with an decimation and interpolation function (85 and 87) in order to allow a camera to obtain a high resolution image at a reasonable cost by decreasing the complexity of the processing required.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to interpolate the image data output form the image sensors of Muramoto as taught by Nohda in order to decrease the processing required and enable the camera to obtain a high resolution image at a reasonable cost.

12: In regards to Claim 11, Nohda further teaches on Column 11, Lines 12-27 that the derived image data is high resolution R,G,B color data.

13: As for Claim 12, Nohda further teaches on Column 11, Lines 12-27 that the derived image data is high resolution R,G,B color data.

14: In regards to Claim 13, Muramoto teaches on Column 1, Lines 5-11 that the camera is a video camera. Furthermore, Muramoto depicts in Figure 2 the use of a lens (1). Therefore, Lens (1) is used for a motion picture and is therefore, viewed as a motion picture camera type.

15: As for Claim 14, Muramoto teaches on Column 1, Lines 5-11 that the camera is a video camera. Furthermore, Muramoto depicts in Figure 2 the use of a lens (1). Therefore, Lens (1) is used for a motion picture and is therefore, viewed as a motion picture camera type.

16: In regards to Claim 15, Muramoto teaches on Column 8, Lines 5-49 and depicts in Figure 8 an apparatus for producing electronic video signals representative of color images of a scene (video out), comprising: a luminance sensor (15) and a color sensor (14) having a color filter thereover; a beam-splitter (16), and a lens system (1) that focuses light from the image, via the beam-splitter (16), onto the luminance sensor (15) and the color sensor (14); and means for producing electronic video signals (R, B, G, Y) from outputs of the luminance sensor (15) and the color sensor (14). Muramoto teaches that the color image sensor is a RGB color sensor. However, Muramoto does not teach that the three color image sensor can have the red and green pixels arranged in a checkerboard pattern. The examiner notes that the claim language is written broadly and therefore, the examiner does not believe that the claim is limited to an image sensor only having red and green pixel arranged in a checkerboard pattern.

Nohda teaches on Column 3, Lines 44-50 and depicts in Figure 3 that it was advantageous to arrange the red, green, and blue pixels in an RGB color image sensor in a checkerboard arrangement in order to improve image quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the red, green, and blue pixels in the image sensor (14) of Muramoto in a checkerboard arrangement in order to improve image quality.

17: As for Claim 16, Muramoto teaches on Column 1, Lines 5-11 that the camera is a video camera. Furthermore, Muramoto depicts in Figure 2 the use of a lens (1). Therefore, Lens (1) is used for a motion picture and is therefore, viewed as a motion picture camera type.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Hannett whose telephone number is 571-272-7309. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 571-272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hannett
Examiner
Art Unit 2612

JMH
June 9, 2005

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